# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

re Application of

Alexander T. SCHWARM

Serial No. 10/765,921

Group Art Unit:

Filed: January 29, 2004

Examiner:

For: SYSTEM, METHOD, AND MEDIUM FOR MONITORING PERFORMANCE OF AN ADVANCED PROCESS CONTROL SYSTEM

# INFORMATION DISCLOSURE STATEMENT

Honorable Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the documents listed on the attached form PTO-1449. It is respectfully requested that the documents be expressly considered during the prosecution of this application, and that the documents be made of record therein and appear among the "References Cited" on any patent to issue therefrom. Copies of any cited U.S. Patents and U.S. Patent Publications are not being submitted in accordance with 37 CFR 1.98(a)(2)(i).

This Information Disclosure Statement is being filed within three months of the U.S. filing date OR before the mailing date of a first Office Action on the merits. No certification or fee is required.

In accordance with 37 C.F.R. § 1.97(g) and (h), the filing of this IDS should not be construed as a representation that a search had been made or that information cited is, or is considered to be, material to patentability as defined in 37 C.F.R.§ 1.56 (b), or that any cited document listed or attached is (or constitutes) prior art. Unless otherwise indicated, the date of

Serial No. 10/765,921

publication indicated for an item is taken from the face of the item, and Applicant reserves the right to prove that the date of publication is in fact different.

The references listed on Sheet 1 of the attached PTO-1449 Forms were cited in a patentability investigation and/or a corresponding foreign or PCT application relating to the above-referenced application. The remaining references are from potentially related patent applications, and possibly other sources.

No fee is believed to be required; however, the Commissioner is authorized to charge any deficiency in any fees pursuant to 37 CFR § 1.17 associated with this communication and to credit any excess payment to Deposit Account No. 08-0219.

Respectfully submitted,

WILMER CUTLER PICKERING HALE AND DORR LLP

Scott M. Alter

Registration No. 32,879

1455 Pennsylvania Avenue, NW

Washington, DC 20004

TEL 202.942.8400 SMA/lrm

FAX 202.942.8484

Date:

JUN 1 6 2004

SHEET 1 OF 26

ĕ INF	INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)			APPLICANT				
				Alexander T. SC	HWAKM			_
				FILING DATE January 29, 2004	1	GROUP		
		Ţ	U.S. PATENT D	OCUMENTS		<u></u>		
EXAMINER'S INITIALS	PATENT NO.	DATE	NAME		CLASS	SUBCLASS		LING ATE
	5,642,296	06/24/97	Saxena		1		07/29	9/93
	5,646,870	07/08/97	Krivokapic et	al.	<del>                                     </del>	1	02/13	3/95
_	5,719,796	02/17/98	Chen		<b> </b>	1	12/04	1/95
	5,787,269	07/28/98	Hyodo				09/19/95	
	5,859,964	01/12/99	Wang et al.		1		10/25/96	
	5,960,185	09/28/99	Nguyen				06/24/96	
	6,210,983 B1	04/03/01	Atchison et al.	•			06/15	5/99
	6,360,184 B1	03/19/02	Jacquez				03/26	5/97
	6,397,114 B1	05/28/02	Eryurek et al.				05/03/99	
		FOF	EIGN PATENT	T DOCUMENTS	<u> </u>		<u> </u>	
EXAMINER'S	PATENT NO.	DATE		COUNTRY	CLASS	SUBCLASS		
INITIALS							Trans Yes	slation No
	WO 01/25865 A1	04/12/01	wo		+		X	140
	†							
	OTHER	ART (Inclu	iding Author, T	itle, Date, Pertinent l	Pages, Etc.)	· · · · · · · · · · · · · · · · · · ·		
	Evidence Integration 4, n. 1, pp. 43-51.	on: An LPCV	D Application."	ary 1991. "Continuou IEEE Transactions o	n Semicondu	ctor Manufa	cturing	ζ, v.
	Boning, Duane S., .	Jerry Stefani.	, and Stephanie V	W. Butler. February 19 of Electrical Engineeri	999. "Statist	ical Methods	for	
-	"Semiconductor M	anufacturing	: An Overview."	<a href="http://users.ece.gate">http://users.ece.gate</a>	ch.edu/~gma	y/overview.l	html>	
				<u>-</u>				
			<del></del>					
EXAMINER			D.	ATE CONSIDERED				

SHEET 2 OF 26

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)			ATTY. DOCKET NO. 007733 USA/FPS/MMCS/APC		SERIAL NO. 10/765,921		
				APPLICANT Alexander T.	SCHWARM		
				FILING DATE January 29, 2	004	GROUP	
			U.S. PATENT	DOCUMENTS			
EXAMINER'S			1				FILING
INITIALS	PATENT NO.	DATE		NAME	CLASS	SUBCLASS	DATE
	3,205,485	09/07/65	Noltingk				10/21/60
	3,229,198	01/11/66	Libby				09/28/62
	3,767,900	10/23/73	Chao et al.				06/23/71
	3,920,965	11/18/75	Sohrwardy				03/04/74
	4,000,458	12/28/76	Miller et al.				08/21/75
	4,207,520	06/10/80	Flora et al.				04/06/78
	4,209,744	06/24/80	Gerasimov e	t al.			03/27/78
	4,302,721	11/24/81	Urbanek et a	1.			05/15/79
	4,368,510	01/11/83	Anderson				10/20/80
	4,609,870	09/02/86	Lale et al.				09/13/84
	4,616,308	10/07/86	Morshedi et	al.			12/02/85
	4,663,703	05/05/87	Axelby et al.	•			10/02/85
	4,698,766	10/06/87	Entwistle et	al.			05/17/85
	4,750,141	06/07/88	Judell et al.				11/26/85
	4,755,753	07/05/88	Chern		-		07/23/86
	4,757,259	07/12/88	Charpentier				11/05/86
	4,796,194	01/03/89	Atherton				08/20/86
	4,901,218	02/13/90	Cornwell				03/04/88
	4,938,600	07/03/90	Into				02/09/89
	4,967,381	10/30/90	Lane et al.				07/06/89
	5,089,970	02/18/92	Lee et al.				10/05/89
	5,108,570	04/28/92	Wang			· <del></del>	03/30/90
	5,208,765	05/04/93	Turnbull				07/20/90
	5,220,517	06/15/93	Sierk et al.	-			08/31/90
	5,226,118	07/06/93	Baker et al.	<u> </u>			01/29/91
	5,231,585	07/27/93	Kobayashi et	al.			06/20/90
	5,236,868	08/17/93	Nulman				04/20/90
	5,260,868	11/09/93	_1				10/15/91
EXAMINER	<u> </u>	<b>↓</b>	Gupta et al.	DATE CONSIDERI	. ED		

SHEET 3 OF 26

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)		ATTY. DOCKET		SERIAL N 10/765,			
				APPLICANT Alexander T. S	SCHWARM		
				FILING DATE		GROUP	- <u>, - </u> ,
				January 29, 20	04		
			U.S. PATENT I	DOCUMENTS		-1	
XAMINER'S INITIALS	PATENT NO.	DATE		NAME	CLASS	SUBCLASS	FILIN DAT
	5,270,222	12/14/93	Moslehi				12/31/9
	5,283,141	02/01/94	Yoon et al.				03/05/9
	5,295,242	03/15/94	Mashruwala	et al.			11/02/9
	5,309,221	05/03/94	Fischer et al.				12/31/9
	5,329,463	07/12/94	Sierk et al.				01/13/9
	5,338,630	08/16/94	Yoon et al.				11/18/9
	5,347,446	09/13/94	Iino et al.				02/10/9
	5,367,624	11/22/94	Cooper				06/11/9
	5,375,064	12/20/94	Bollinger	-			12/02/9
	5,398,336	03/14/95	Tantry et al.				06/16/9
	5,402,367	03/28/95	Sullivan et al.				07/19/9
	5,408,405	04/18/95	Mozumder et	al.			09/20/9
	5,410,473	04/25/95	Kaneko et al.				12/16/9
	5,420,796	05/30/95	Weling et al.				12/23/9
	5,427,878	06/27/95	Corliss				05/16/9
	5,469,361	11/21/95	Moyne				06/06/9
	5,485,082	01/16/96	Wisspeintner	et al.			04/05/9
	5,490,097	02/06/96	Swenson et al				08/06/9
	5,495,417	02/27/96	Fuduka et al.				03/16/9
	5,497,316	03/05/96	Sierk et al.				04/04/9
	5,497,381	03/05/96	O'Donoghue	et al.			06/01/9
	5,503,707	04/02/96	Maung et al.				09/22/9
	5,508,947	04/16/96	Sierk et al.				05/13/9
	5,511,005	04/23/96	Abbe et al.				02/16/9
	5,519,605	05/21/96	Cawlfield				10/24/94
	5,525,808	06/11/96	Irie et al.				12/20/94
	5,526,293	06/11/96	Mozumder et	al.			12/17/93
	5,534,289	07/09/96	Bilder et al.				01/03/95
	5,541,510	07/30/96	Danielson				04/06/95

SHEET 4 OF 26

INIE	INFORMATION DIGGLOGUE			SHEET 4 OF 26  ATTY, DOCKET NO. SERIAL NO.			
INF	INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)			007733 USA/FPS		SERIAL N 10/765,9	
				APPLICANT Alexander T. S	CHWARM		
				FILING DATE January 29, 200	04	GROUP	
		1	U.S. PATENT DO	OCUMENTS			
EXAMINER'S INITIALS	PATENT NO.	DATE		NAME	CLASS	SUBCLASS	FILING DATE
	5,546,312	08/13/96	Mozumder et a	al.			02/24/94
	5,553,195	09/03/96	Meijer				09/29/94
	5,586,039	12/17/96	Hirsch et al.		+		02/27/95
	5,599,423	02/04/97	Parker et al.				06/30/95
	5,602,492	02/11/97	Cresswell et al	1.	+		04/28/94
	5,603,707	02/18/97	Trombetta et al	1.			11/28/95
	5,617,023	04/01/97	Skalski				02/02/95
	5,627,083	05/06/97	Tounai				05/12/95
	5,629,216	05/13/97	Wijaranakula e	et al.			02/27/96
	5,649,169	07/15/97	Berezin et al.				06/20/95
	5,654,903	08/05/97	Reitman et al.			1	11/07/95
	5,655,951	08/12/97	Meikle et al.	<b></b>			09/29/95
	5,657,254	08/12/97	Sierk et al.	-	+ 1		04/15/96
	5,661,669	08/26/97	Mozumder et a	ıl.			06/07/95
	5,663,797	09/02/97	Sandhu				05/16/96
	5,664,987	09/09/97	Renteln				09/04/96
	5,665,199	09/09/97	Sahota et al.				06/23/95
	5,666,297	09/09/97	Britt et al.			ı J	05/13/94
	5,667,424	09/16/97	Pan				09/25/96
	5,674,787	10/07/97	Zhao et al.				01/16/96
	5,694,325	12/02/97	Fukuda et al.			1	11/22/95
	5,698,989	12/16/97	Nulman				09/13/96
	5,719,495	02/17/98	Moslehi			1	06/05/96
	5,735,055	04/07/98	Hochbein et al.		1		04/23/96
	5,740,429	04/14/98	Wang et al.		1		07/07/95

SHEET <u>5</u> OF <u>26</u>

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)		ATTY. DOCKET NO 007733 USA/FPS/N		SERIAL N 10/765,			
				APPLICANT Alexander T. SC	HWARM		
				FILING DATE January 29, 2004	ļ	GROUP	
			U.S. PATENT D	OCUMENTS			
EXAMINER'S INITIALS	PATENT NO.	DATE		NAME	CLASS	SUBCLASS	FILING DATE
	5,751,582	05/12/98	Saxena et al.				09/24/96
	5,754,297	05/19/98	Nulman				04/14/97
	5,761,064	06/02/98	La et al.				10/06/95
	5,761,065	06/02/98	Kittler et al.				03/30/95
	5,764,543	06/09/98	Kennedy			,	06/16/95
·	5,777,901	07/07/98	Berezin et al.			-	09/29/95
	5,787,021	07/28/98	Samaha				12/18/95
	5,808,303	09/15/98	Schlagheck et al.				01/29/97
	5,812,407	09/22/98	Sato et al.				08/12/97
	5,823,854	10/20/98	Chen				05/28/96
	5,825,913	10/20/98	Rostami et al.				07/18/95
	5,828,778	10/27/98	Hagi et al.				07/12/96
	5,832,224	11/03/98	Fehskens et al				06/14/96
	5,838,595	11/17/98	Sullivan et al.				11/25/96
	5,844,554	12/01/98	Geller et al.				09/17/96
	5,857,258	01/12/99	Penzes et al.				05/12/94
	5,859,975	01/12/99	Brewer et al.				08/09/96
	5,862,054	01/19/99	Li		-		02/20/97
	5,863,807	01/26/99	Jang et al.				03/15/96
	5,867,389	02/02/99	Hamada et al.				11/26/96
!	5,870,306	02/09/99	Harada				06/13/97
	5,883,437	03/16/99	Maruyama et a	al.			12/28/95
	5,889,991	03/30/99	Consolatti et a	1.			12/06/96
	5,901,313	05/04/99	Wolfe et al.				09/02/97
	5,903,455	05/11/99	Sharpe, Jr. et a	d.			12/12/96
	5,910,011	06/08/99	Cruse				05/12/97
	5,910,846	06/08/99	Sandhu				08/19/97

SHEET <u>6</u> OF <u>26</u>

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)		ATTY. DOCKET NO. 007733 USA/FPS/MMCS/APC		SERIAL NO. 10/765,921			
				APPLICANT Alexander T	. SCHWARM		
			FILING DATE January 29,	2004	GROUP		
			U.S. PATENT	DOCUMENTS		1	
EXAMINER'S INITIALS	PATENT NO.	DATE		NAME	CLASS	SUBCLASS	FILING DATE
	5,912,678	06/15/99	Saxena et al.				04/14/97
	5,916,016	06/29/99	Bothra	· · · · · · · · · · · · · · · · · · ·			10/23/97
<u>,</u>	5,923,553	07/13/99	Yi				10/05/96
	5,926,690	07/20/99	Toprac et al.				05/28/97
	5,930,138	07/27/99	Lin et al.				09/10/97
	5,940,300	08/17/99	Ozaki				05/08/97
	5,943,237	08/24/99	Van Boxem				10/17/97
	5,960,214	09/28/99	Sharpe, Jr. et	al.			12/04/96
·	5,961,369	10/05/99	Bartels et al.				06/04/98
	5,963,881	10/05/99	Kahn et al.	-			10/20/97
	5,978,751	11/02/99	Pence et al.				02/25/97
	5,982,920	11/09/99	Tobin, Jr. et	al.			01/08/97
	6,002,989	12/14/99	Shiba et al.				04/01/97
	6,017,771	01/25/00	Yang et al.				04/27/98
	6,036,349	03/14/00	Gombar				07/26/96
	6,041,263	03/21/00	Boston et al.				10/01/97
	6,041,270	03/21/00	Steffan et al.				12/05/97
	6,054,379	04/25/00	Yau et al.				02/11/98
	6,064,759	05/16/00	Buckley et al	•			11/06/97
	6,072,313	06/06/00	Li et al.				06/17/97
	6,074,443	06/13/00	Venkatesh et	al.			01/29/98
	6,077,412	06/20/00	Ting et al.				10/30/98
	6,078,845	06/20/00	Friedman				11/25/96
	6,094,688	07/25/00	Mellen-Garne				03/12/98
	6,097,887	08/01/00	Hardikar et al				10/27/97
	6,108,092	08/22/00	Sandhu			_	06/08/99
	6,111,634	08/29/00	Pecen et al.			_	05/28/97
	6,112,130	08/29/00	Fukuda et al.				10/01/97

SHEET 7 OF 26

#### ATTY, DOCKET NO. SERIAL NO. INFORMATION DISCLOSURE 007733 USA/FPS/MMCS/APC 10/765,921 CITATION IN AN APPLICATION (PTO-1449) APPLICANT Alexander T. SCHWARM FILING DATE **GROUP** January 29, 2004 **U.S. PATENT DOCUMENTS EXAMINER'S FILING** PATENT NO. INITIALS DATE NAME **CLASS SUBCLASS** DATE 6,127,263 10/03/00 Parikh 07/10/98 6,128,016 10/03/00 Coelho et al. 12/20/96 6,136,163 10/24/00 Cheung et al. 03/05/99 6,141,660 10/31/00 Bach et al. 07/16/98 6,143,646 11/07/00 Wetzel 06/03/97 6,148,099 11/14/00 Lee et al. 07/03/97 6,148,239 11/14/00 Funk et al. 12/12/97 6,148,246 11/14/00 Kawazome 06/10/98 6,150,664 11/21/00 Su 06/29/99 6,159,075 12/12/00 Zhang 10/13/99 6,159,644 12/12/00 Satoh et al. 03/06/96 12/12/00 6,161,054 B1 Rosenthal et al. 09/17/98 6,169,931 B1 01/02/01 Runnels 07/29/98 6,172,756 B1 01/09/01 Chalmers et al. 12/11/98 6,173,240 B1 01/09/01 Sepulveda et al. 11/02/98 6,175,777 B1 01/16/01 Kim 01/16/98 6,178,390 B1 01/23/01 Jun 09/08/98 6,183,345 B1 02/06/01 Kamono et al. 03/20/98 6,185,324 B1 02/06/01 Ishihara et al. 01/31/95 02/20/01 6,191,864 B1 Sandhu 02/29/00 6,192,291 B1 02/20/01 Kwon 10/08/98 6,197,604 B1 03/06/01 Miller et al. 10/01/98 6,204,165 B1 03/20/01 Ghoshal 06/24/99 6,211,094 B1 04/03/01 Jun et al. 08/23/99 6,214,734 B1 04/10/01 Bothra et al. 11/20/98 08/11/99 6,217,412 B1 04/17/01 Campbell et al. 04/17/01 6,219,711 B1 Chari 10/01/97 6,222,936 B1 04/24/01 Phan et al. 09/13/99 **EXAMINER** DATE CONSIDERED

SHEET 8 OF 26

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)		ATTY. DOCKET NO. 007733 USA/FPS/MMCS/APC		SERIAL NO. 10/765,921			
				APPLICANT Alexander T. S	SCHWARM		
				FILING DATE		GROUP	
				January 29, 20	004		
		Ī	U.S. PATENT I	OCUMENTS		_1	
XAMINER'S INITIALS	PATENT NO.	DATE		NAME	CLASS	SUBCLASS	FILING DATE
	6,226,792 B1	05/01/01	Goiffon et al.				10/14/9
	6,230,069 B1	05/08/01	Campbell et a	ıl.			06/26/98
	6,236,903 B1	05/22/01	Kim et al.				09/25/98
	2001/0001755 A1	05/24/01	Sandhu et al.				12/29/0
	6,240,330 B1	05/29/01	Kurtzberg et	al.			05/28/9
	6,240,331 B1	05/29/01	Yun	<u>.</u> , w <u>.</u>			08/18/98
	2001/0003084 A1	06/07/01	Finarov			_	12/04/00
	6,245,581 B1	06/12/01	Bonser et al.				04/19/0
	6,246,972 B1	06/12/01	Klimasauskas		_		05/27/99
	6,248,602 B1	06/19/01	Bode et al.				11/01/99
	6,249,712 B1	06/19/01	Boiquaye				09/25/90
	6,252,412 B1	06/26/01	Talbot et al.				01/08/99
	6,253,366 B1	06/26/01	Mutschler, III				03/31/99
	6,263,255 B1	07/17/01	Tan et al.				05/18/98
	6,271,670 B1	08/07/01	Caffey				02/08/99
	6,276,989 B1	08/21/01	Campbell et a	1.			08/11/99
	6,278,899 B1	08/21/01	Piche et al.				10/06/98
	6,280,289 B1	08/28/01	Wiswesser et	al.			11/02/98
	6,284,622 B1	09/04/01	Campbell et a	I			10/25/99
	6,287,879 B1	09/11/01	Gonzales et al			-	08/11/99
	6,290,572 B1	09/18/01	Hofmann				03/23/00
	6,292,708 B1	09/18/01	Allen et al.			_	06/11/98
	6,298,274 B1	10/02/01	Inoue				09/01/99
	6,298,470 B1	10/02/01	Breiner et al.				04/15/99
	6,303,395 B1	10/16/01	Nulman				06/01/99
	6,304,999 B1	10/16/01	Toprac et al.				10/23/00
	2001/0030366 A1	10/18/01	Nakano et al.				03/07/01
	6,307,628 B1	10/23/01	Lu et al.				08/18/00
	6,314,379 B1	11/06/01	Hu et al.			-	12/04/97

SHEET 9 OF 26

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)					SERIAL NO. 10/765,921		
				APPLICANT Alexander T. S	CHWARM		
			FILING DATE January 29, 200	)4	GROUP		
			U.S. PATENT	DOCUMENTS		<u> </u>	·
EXAMINER'S		1					FILING
INITIALS	PATENT NO.	DATE		NAME	CLASS	SUBCLASS	DATE
	2001/0039462 A1	11/08/01	Mendez et al				04/02/01
	2001/0040997 A1	11/15/01	Tsap et al.				05/15/01
	6,320,655 B1	11/20/01	Matsushita e	t al.			03/15/00
	2001/0042690 A1	11/22/01	Talieh				12/14/00
	2001/0044667 A1	11/22/01	Nakano et al.  Atchison et al.				05/16/0
	6,324,481 B1	11/27/01					06/15/99
	6,334,807 B1	01/01/02	Lebel et al.				04/30/9
	6,336,841 B1	01/08/02	Chang				03/29/0
	6,340,602 B1	01/22/02	Johnson et al.				02/12/0
	6,345,288 B1	02/05/02	Reed et al.				05/15/0
	6,345,315 B1	02/05/02	Mishra				08/12/9
	6,346,426 B1	02/12/02	Toprac et al.				11/17/00
-	2002/0032499	03/14/02	Wilson et al.				05/04/0
	6,360,133 B1	03/19/02	Campbell et	al.			06/17/99
	6,363,294 B1	03/26/02	Coronel et al	•			12/29/98
	6,366,934 B1	04/02/02	Cheng et al.	, -19 <sub>4</sub> ; -			06/02/99
	6,368,879 B1	04/09/02	Toprac				09/22/99
	6,368,883 B1	04/09/02	Bode et al.				08/10/99
·	6,368,884 B1	04/09/02	Goodwin et a	ıl.			04/13/00
	6,379,980 B1	04/30/02	Toprac				07/26/00
	6,388,253 B1	05/14/02	Su				11/02/00
	6,389,491 B1	05/14/02	Jacobson et a	1.		·	03/23/99
	2002/0058460 A1	05/16/02	Lee et al.				09/14/01
	6,395,152 B1	05/28/02	Wang				07/02/99
	6,400,162 B1	06/04/02	Mallory et al.	·-			07/21/00
	6,405,096 B1	06/11/02	Toprac et al.	-	-1		08/10/99
	6,405,144 B1	06/11/02	Toprac et al.				01/18/00

SHEET 10 OF 26

## ATTY. DOCKET NO. SERIAL NO. INFORMATION DISCLOSURE 007733 USA/FPS/MMCS/APC 10/765,921 CITATION IN AN **APPLICATION** (PTO-1449) APPLICANT Alexander T. SCHWARM FILING DATE **GROUP** January 29, 2004 **U.S. PATENT DOCUMENTS EXAMINER'S** FILING INITIALS PATENT NO. DATE NAME **CLASS SUBCLASS** DATE 2002/0070126 A1 06/13/02 Sato et al. 09/19/01 2002/0077031 A1 06/20/02 Johannson et al. 07/06/01 2002/0081951 A1 06/27/02 Boyd et al. 02/20/02 2002/0089676 A1 07/11/02 Pecen et al. 04/26/00 2002/0102853 A1 08/01/02 Li et al. 12/20/01 2002/0107599 A1 08/08/02 Patel et al. 01/25/01 2002/0107604 A1 08/08/02 Riley et al. 12/06/00 6,435,952 B1 08/20/02 Boyd et al. 06/30/00 6,438,438 B1 08/20/02 Takagi et al. 01/02/98 2002/0113039 A1 08/22/02 Mok et al. 02/16/01 6,440,295 B1 08/27/02 Wang 02/04/00 6,442,496 B1 08/27/02 Pasadyn et al. 08/08/00 2002/0127950 A1 09/12/02 Hirose et al. 03/08/01 2002/0128805 A1 09/12/02 Goldman et al. 12/26/00 6,455,937 B1 09/24/02 Cunningham 03/17/99 2002/0149359 A1 10/17/02 Crouzen et al. 08/18/01 6,470,230 B1 10/22/02 Toprac et al. 01/04/00 6,479,902 B1 11/12/02 Lopatin et al. 06/29/00 6,479,990 B2 11/12/02 Mednikov et al. 06/18/01 6,482,660 B2 11/19/02 Conchieri et al. 03/19/01 6,486,492 B1 11/26/02 Su 11/20/00 6,492,281 B1 12/10/02 Song et al. 09/22/00 2002/0185658 A1 12/12/02 Inoue et al. 06/14/01 2002/0193902 A1 12/19/02 Shanmugasundram et al. 06/18/02 2002/0197745 A1 12/26/02 Shanmugasundram et al. 08/31/01 2002/0197934 A1 12/26/02 Paik 11/30/01 2002/0199082 A1 12/26/02 Shanmugasundram et al. 06/18/02 **EXAMINER DATE CONSIDERED**

SHEET 11 OF 26

INF	INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)			ATTY. DOCKET NO. 007733 USA/FPS/MMCS/APC		SERIAL NO. 10/765,921	
	`	,		APPLICANT Alexander T. SC	HWARM		
			FILING DATE January 29, 2004		GROUP		
		U	.S. PATENT DO	OCUMENTS			
EXAMINER'S INITIALS	PATENT NO.	DATE	NAME CLASS		CLASS	SUBCLASS	FILING DATE
	6,503,839 B2	01/07/03	Gonzales et al.			-	07/03/01
	2003/0020909 A1	01/30/03	Adams et al.				04/09/01
	2003/0020928 A1	01/30/03	Ritzdorf et al.				07/09/01
	6,517,413 B1	02/11/03	Hu et al.				10/25/00
	6,540,591 B1	04/01/03	Pasadyn et al.				04/18/01
	6,560,504 B1	05/06/03	Goodwin et al.			09/29/99	
	6,563,308 B2	05/13/03	Nagano et al.			03/27/01	
	6,567,717 B2	05/20/03	Krivokapic et al.			01/19/00	
	6,587,744 B1	07/01/03	Stoddard et al.			06/20/00	
	6,590,179 B2	07/08/03	Tanaka et al.				02/26/01
	6,604,012 B1	08/05/03	Cho et al.				08/23/00
	6,618,692 B2	09/09/03	Takahashi et al	•			02/26/01
	6,625,497 B2	09/23/03	Fairbairn et al.				07/10/01
	6,640,151 B1	10/28/03	Somekh et al.				12/22/99
EXAMINER			DA	ATE CONSIDERED			

SHEET 12 OF 26

SERIAL NO.

ATTY, DOCKET NO.

# INFORMATION DISCLOSURE 007733 USA/FPS/MMCS/APC 10/765,921 CITATION IN AN **APPLICATION** (PTO-1449) APPLICANT Alexander T. SCHWARM FILING DATE GROUP January 29, 2004 U.S. PATENT DOCUMENTS **EXAMINER'S** PATENT FILING SUB-INITIALS APP. NO. DATE NAME TITLE **CLASS CLASS** 09/363,966 07/29/99 Arackaparambil et Computer Integrated Manufacturing **Techniques** 09/469,227 12/22/99 Somekh et al. Multi-Tool Control System, Method and Medium 09/619,044 07/19/00 Yuan System and Method of Exporting or Importing Object Data in a Manufacturing **Execution System** 09/637,620 08/11/00 Chi et al. Generic Interface Builder 09/06/00 Chi et al. 09/656,031 Dispatching Component for Associating Manufacturing Facility Service Requestors with Service Providers 09/655,542 09/06/00 Yuan System, Method and Medium for Defining Palettes to Transform an Application Program Interface for a Service 09/725,908 11/30/00 Chi et al. Dynamic Subject Information Generation in Message Services of Distributed Object Systems 09/800,980 03/08/01 Hawkins et al. Dynamic and Extensible Task Guide 09/811,667 03/20/01 Yuan et al. Fault Tolerant and Automated Computer Software Workflow 09/927,444 08/13/01 Ward et al. Dynamic Control of Wafer Processing Paths in Semiconductor Manufacturing Processes 09/928,473 08/14/01 Koh Tool Services Layer for Providing Tool Service Functions in Conjunction with Tool **Functions** 09/928,474 08/14/01 Krishnamurthy et al. Experiment Management System, Method and Medium 09/943,383 08/31/01 Shanmugasundram In Situ Sensor Based Control of - . et al. Semiconductor Processing Procedure 09/943,955 08/31/01 Shanmugasundram Feedback Control of a Chemical Mechanical et al. Polishing Device Providing Manipulation of Removal Rate Profiles 11/30/01 09/998,372 Paik Control of Chemical Mechanical Polishing Pad Conditioner Directional Velocity to Improve Pad Life 09/998,384 11/30/01 Paik Feedforward and Feedback Control for Conditioning of Chemical Mechanical Polishing Pad **EXAMINER** DATE CONSIDERED

SHEET 13 OF 26

# ATTY, DOCKET NO. SERIAL NO. INFORMATION DISCLOSURE 007733 USA/FPS/MMCS/APC 10/765,921 CITATION IN AN **APPLICATION** (PTO-1449) **APPLICANT** Alexander T. SCHWARM FILING DATE **GROUP** January 29, 2004 **U.S. PATENT DOCUMENTS** EXAMINER'S **PATENT** FILING SUB-INITIALS APP. NO. NAME TITLE DATE **CLASS CLASS** 10/084.092 02/28/02 Arackaparambil et Computer Integrated Manufacturing Techniques 10/100,184 03/19/02 Al-Bayati et al. Method, System and Medium for Controlling Semiconductor Wafer Processes Using Critical Dimension Measurements 10/135,405 05/01/02 Reiss et al. Integration of Fault Detection with Run-to-Run Control 10/135,451 05/01/02 Shanmugasundram Dynamic Metrology Schemes and Sampling et al. Schemes for Advanced Process Control in Semiconductor Processing 10/172,977 06/18/02 Shanmugasundram Method, System and Medium for Process et al. Control for the Matching of Tools, Chambers and/or Other Semiconductor-Related Entities 10/173,108 06/18/02 Shanmugasundram Integrating Tool, Module, and Fab Level et al. Control 10/174,370 06/18/02 Shanmugasundram Feedback Control of Plasma-Enhanced et al. Chemical Vapor Deposition Processes 10/174,377 06/18/02 Schwarm et al. Feedback Control of Sub-Atmospheric Chemical Vapor Deposition Processes 10/377,654 03/04/03 Kokotov et al. Method, System and Medium for Controlling Manufacturing Process Using Adaptive Models Based on Empirical Data 10/393,531 03/21/03 Shanmugasundram Copper Wiring Module Control et al. 10/632,107 | 08/01/03 Schwarm et al. Method, System, and Medium for Handling Misrepresentative Metrology Data Within an Advanced Process Control System 10/665,165 | 09/18/03 Paik Feedback Control of a Chemical Mechanical Polishing Process for Multi-Layered Films 10/712,273 11/14/03 Kokotov Method, System and Medium for Controlling Manufacture Process Having Multivariate Input Parameters 10/759,108 01/20/04 Schwarm Automated Design and Execution of **Experiments with Integrated Model Creation** for Semiconductor Manufacturing Tools **EXAMINER** DATE CONSIDERED

SHEET 17 OF 26

			3E1 17 O1 20
INFORMATION DISC	CLOSURE	ATTY. DOCKET NO.	SERIAL NO.
CITATION IN	AN	007733 USA/FPS/MMCS/APC	10/765,921
APPLICATIO		11	
(PTO-1449)			
		APPLICANT SCIENCARM	
		Alexander T. SCHWARM	
		FILING DATE	GROUP
		January 29, 2004	
OTHER AR'	Γ (Including Author	r, Title, Date, Pertinent Pages, Etc.)	
Miller, G. L., D. A. H. Rob	nson, and J. D. Wile	y. July 1976. "Contactless measureme	nt of semiconductor
conductivity by radio freque 805.	ency-free-carrier pov	ver absorption." Rev. Sci. Instrum., Vo	lume 47, No. 7. pp. 799 –
Ostanin, Yu.Ya. October 1	981. "Optimization	of Thickness Inspection of Electrically	Conductive Single-Layer
	y-Current Transduce	rs (Abstract)." Defektoskopiya, vol. 17	7, no. 10, pp. 45-52.
Moscow, USSR.	d Amanatus of in Ci	tu Measurement and Overlay Error Ar	
		tu Measurement and Overlay Error Ar ical Disclosure Bulletin, pp. 4855-485	
		IBM Technical Disclosure Bulletin, p	
		pility of a Step and Repeat Lithographi	
Technical Disclosure Bullet		only of a stop and Ropout Ettilographi	e oystom. Thin
		chine. New York: McGraw-Hill, Inc.	pp. ix-xii, 1-58.
		Ways of Elimination for Contactless M vol. 55, no. 1, pp. 27-30. West Germa	
		er 1990. "Statistical Equipment Mode	
Manufacturing: An Applica pp. 216-229.	tion for LPCVD." II	EEE Transactions on Semiconductor N	Sanufacturing, v. 3, n. 4,
Runyan, W. R., and K. E. B Reading, Massachusetts: Ac		ductor Integrated Circuit Processing T	echnology." pg. 48.
Larrabee, G. B. May 1991.	"The Intelligent Mic	croelectronics Factory of the Future (Aence Symposium, pp. 30-34. Burlingar	bstract)." IEEE/SEMI ne. CA.
Burke, Peter A. June 1991.	"Semi-Empirical M	odelling of SiO2 Chemical-Mechanica	al Polishing
Planarization." VMIC Conf	erence, 1991 IEEE, p	pp. 379-384. IEEE.	
Zorich, Robert. 1991. <i>Hand</i> California: Academic Press,		grated Circuit Manufacturing. pp. 464-	498 San Diego,
		Shah. 1991. CEPT—A Computer-Aide	
	quipment Reliability	and Availability in the Semiconductor	Industry. New York,
New York: IEEE. May 1992 "Laser Ablation	Endpoint Detector "	IBM Technical Disclosure Bulletin, p	n 333-334
Statistical Process Control Upp. 308-318.	Jsing Tool Data." IE	nd Joanne Levine-Parrill. November 1 EEE Transactions on Semiconductor M	anufacturing, v. 5, n. 4,
February 1993. "Electroless Bulletin, pp. 405-406.	Plating Scheme to H	Hermetically Seal Copper Features." I	BM Technical Disclosure
EXAMINER		DATE CONSIDERED	
<u> </u>			

SHEET 18 OF 26

	SHE	ET 18 OF 26
INFORMATION DISCLOSURE	ATTY. DOCKET NO.	SERIAL NO.
CITATION IN AN	007733 USA/FPS/MMCS/APC	10/765,921
APPLICATION		
	10	
(PTO-1449)	ADDITION	l
	APPLICANT Alexander T. SCHWARM	
	FILING DATE	GROUP
	January 29, 2004	
Scarr, J. M. and J. K. Zelisse. April 1993. "New (Abstract)." Proceedings of the 36 <sup>th</sup> Annual Tech		Eddy Current Sensors
Hu, Albert, Kevin Nguyen, Steve Wong, Xiuhua		iteln, 1993, "Concurrent
Deployment of Run by Run Controller Using SC		
Manufacturing Science Symposium. pp. 126-132		
Matsuyama, Akira and Jessi Niou. 1993. "A Sta		
Japan." IEEE/SEMI International Semiconductor		
Yeh, C. Eugene, John C. Cheng, and Kwan Wong System for Wafer Fabrication." IEEE/CHMT Int.		
pp. 438-442.	ernational Electronics Manujaciuring	Technology Symposium,
Kurtzberg, Jerome M. and Menachem Levanoni.	January 1994. "ABC: A Better Contr	ol for Manufacturing"
IBM Journal of Research and Development, v. 38		or for intantitue turning.
Mozumder, Purnendu K. and Gabriel G. Barna. I	ebruary 1994. "Statistical Feedback	Control of a Plasma Etch
Process." IEEE Transactions on Semiconductor		
Muller-Heinzerling, Thomas, Ulrich Neu, Hans O		
Controlled Operation of Batch Processes with Bat	ch X." ATP Automatisierungstechnis	che Praxis, vol. 36, no.
3, pp. 43-51. Stoddard, K., P. Crouch, M. Kozicki, and K. Tsak	alis June July 1004 "Application of	f Feedforward and
Adaptive Feedback Control to Semiconductor De	vice Manufacturing (Abstract)." Proc	
American Control Conference – ACC '94, vol. 1, Rocha, Joao and Carlos Ramos. September 12, 19		Agila Manufacturing
Systems." Intelligent Robots and Systems '94. Ad		
Proceedings of the IEEE/RSJ/GI International Co		
New York: IEEE. pp. 105-112.		
Schaper, C. D., M. M. Moslehi, K. C. Saraswat, a		
and Control of Rapid Thermal Processing System 141, no. 11, pp. 3200-3209.		
Tao, K. M., R. L. Kosut, M. Ekblad, and G. Aral.		
Semiconductor Wafers (Abstract)." Proceedings	of the 33" IEEE Conference on Decis	ion and Control, vol. 1,
pp. 67-72. Lake Buena Vista, Florida.	J.C. 1004 (A. 1)	· CD I D
Hu, Albert, He Du, Steve Wong, Peter Renteln, an Controller to the Chemical-Mechanical Planarizat		
Manufacturing Technology Symposium, pp. 371-3		nai Liectronics
Spanos, C. J., S. Leang, SY. Ma, J. Thomson, B.		Multisten Supervisory
Controller for Photolithographic Operations (Abst		
Diagnostics, and Modeling in Semiconductor Mar	ufacturing, pp. 3-17.	
Moyne, James, Roland Telfeyan, Arnon Hurwitz,		
Run-to-Run Controller and Its Application to Che		
Semiconductor Manufacturing Conference and W		
Electrical Engineering & Computer Science Center Zhou, Zhen-Hong and Rafael Reif. August 1995.		
Transform Infrared Spectroscopy—Part II: Real-T		
Transactions on Semiconductor Manufacturing, V	ol. 8, No. 3.	
	DATE CONSIDERED	
<u> </u>		I

SHEET 19 OF 26

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)	ATTY. DOCKET NO. 007733 USA/FPS/MMCS/APC	SERIAL NO. 10/765,921
(2.20.11.15)	APPLICANT Alexander T. SCHWARM	L
	FILING DATE January 29, 2004	GROUP
Telfeyan, Roland, James Moyne, Nauman Cha Moyne, Arnon Hurwitz, and John Taylor. Oct Chemical-Mechanical Planarization Process." American Vacuum Society.	ober 1995. "A Multi-Level Approach to Minneapolis, Minnesota: 42 <sup>nd</sup> National	o the Control of a Symposium of the
Chang, E., B. Stine, T. Maung, R. Divecha, D. Nakagawa, S. Oh, and D. Bartelink. December Systematic and Random Sources of Die- and Washington, D.C.: International Electron Devi	er 1995. "Using a Statistical Metrology I Vafer-level ILD Thickness Variation in G	Framework to Identify
Moyne, James R., Nauman Chaudhry, and Rol Run-to-Run Controller for Plasma Etching." Jo University of Michigan Display Technology M	ournal of Vacuum Science and Technolo Ianufacturing Center.	gy. Ann Arbor, Michigan:
Schmid, Hans Albrecht. 1995. "Creating the Austin, Texas: OOPSLA.	Architecture of a Manufacturing Framew	ork by Design Patterns."
Dishon, G., M. Finarov, R. Kipper, J.W. Curry February 1996. "On-Line Integrated Metrolog Speciality Conferences, 1st International CMP	y for CMP Processing." Santa Clara, Ca	
Leang, Sovarong, Shang-Yi Ma, John Thomso Control System for Photolithographic Sequence no. 2.	n, Bart John Bombay, and Costas J. Spaces." <i>IEEE Transactions on Semiconduc</i>	nos. May 1996. "A tor Manufacturing, vol. 9,
Smith, Taber, Duane Boning, James Moyne, A CMP Pad Wear Using Run by Run Feedback ( International VLSI Multilevel Interconnection	Control." Santa Clara, California: Proceed	
Boning, Duane S., William P. Moyne, Taber H Shellman, and John Taylor. October 1996. "R Transactions on Components, Packaging, and	I. Smith, James Moyne, Ronald Telfeyan In by Run Control of Chemical-Mechar	nical Polishing." IEEE
Zhe, Ning, J. R. Moyne, T. Smith, D. Boning, Comparative Analysis of Run-to-Run Control (Abstract)." <i>IEEE/SEMI 1996 Advanced Semic</i>	E. Del Castillo, Yeh Jinn-Yi, and Hurwit Algorithms in Semiconductor Manufactu	tz. November 1996. "A uring Industry
Yasuda, M., T. Osaka, and M. Ikeda. December for Disturbance Suppression (Abstract)." <i>Proc</i> vol. 2, pp. 1229-1233. Kobe, Japan.		
Fan, Jr-Min, Ruey-Shan Guo, Shi-Chung Chan Sequence-Disordered Data Using EWMA Met Conference, pp. 169-174.	hod." IEEE/SEMI Advanced Semicondu	ctor Manufacturing
SEMI. [1986] 1996. "Standard for Definition a Maintainability (RAM)." SEMI E10-96.	nd Measurement of Equipment Reliabili	ty, Availability, and
Smith, Taber and Duane Boning. 1996. "A Se Function Approximation Techniques." <i>IEEE/C Symposium</i> , pp. 355-363.		
EXAMINER	DATE CONSIDERED	
	1	27

SHEET 20 OF 26

INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)	ATTY. DOCKET NO. 007733 USA/FPS/MMCS/APC  APPLICANT	SERIAL NO. 10/765,921	
	Alexander T. SCHWARM	L and the	
	FILING DATE January 29, 2004	GROUP	
Guo, Ruey-Shan, Li-Shia Huang, Argon Chen, ar Methodology for a Run-by-Run EWMA Controll Manufacturing, pp. 61-64.	er." 6 <sup>th</sup> International Symposium on S	Semiconductor	
Mullins, J. A., W. J. Campbell, and A. D. Stock. Run-to-Run Processing in Semiconductor Manufa International Society for Optical Engineering Co.	acturing (Abstract)." Proceedings of inference, vol. 3213, pp. 182-189.	the SPIE – The	
Reitman, E. A., D. J. Friedman, and E. R. Lory. I Multiple-System Models for Yield Analysis (Abs vol. 10, no. 4, pp. 469-481.	stract)." IEEE Transactions on Semice	onductor Manufacturing,	
Durham, Jim and Myriam Roussel. 1997. "A Sta Yield." IEEE/SEMI Advanced Semiconductor Me		ne Defectivity to Probe	
Shindo, Wataru, Eric H. Wang, Ram Akella, and Isolation in Defect Inspection and Classification.' 93.	Andrzej J. Strojwas. 1997. "Excursion of the International Workshop on Stati	istical Metrology, pp. 90-	
Van Zant, Peter. 1997. Microchip Fabrication: A pp. 472-478. New York, New York: McGraw-Hi	11.		
Campbell, W. Jarrett, and Anthony J. Toprac. Fel Manufacturing." Advanced Micro Devises, TWN		ntrol in Microelectronics	
Edgar, Thomas F., Stephanie W. Butler, Jarrett C. K.S. Balakrishnan. May 1998. "Automatic Contrand Possibilities." Automatica, Vol. 36, pp. 1567	rol in Microelectronics Manufacturing -1603, 2000.	g: Practices, Challenges,	
Moyne, James, and John Curry. June 1998. "A F Santa Clara, California: VLSI Multilevel Intercon		al Planarization Process."	
July 1998. "Active Controller: Utilizing Active D Semiconductor Manufacturing (Abstract)." <i>IEEE</i> <i>Technology—Part C</i> , vol. 21, no. 3, pp. 217-224.	Databases for Implementing Multistep Transactions on Components, Packa	iging and Manufacturing	
Mountain View, California: SEMI Standards. SE	SEMI. July 1998. New Standard: Provisional Specification for CIM Framework Domain Architecture.  Mountain View, California: SEMI Standards. SEMI Draft Doc. 2817.		
Consilium. August 1998. Quality Management Co. View, California: Consilium, Inc.	omponent: QMC <sup>TM</sup> and QMC-Link <sup>TM</sup>	Overview. Mountain	
Chemali, Chadi El, James Moyne, Kareemullah K Sokol, and Tarun Parikh. November 1998. "Muli and Post-Measurement Strategy." Seattle, Washir	tizone Uniformity Control of a CMP langton: SEMETECH Symposium.		
Consilium. 1998. FAB300 <sup>TM</sup> . Mountain View, Ca	3-1.7/2	C. D. China and M.	
Fang, S. J., A. Barda, T. Janecko, W. Little, D. Ou Birang. 1998. "Control of Dielectric Chemical M Endpoint Sensor." <i>International Proceedings of the</i>	dechanical Polishing (CMP) Using an he IEEE Interconnect Technology Co	d Interferometry Based inference, pp. 76-78.	
Khan, Kareemullah, Victor Solakhain, Anthony R of ITO Deposition Process." Ann Arbor, Michiga		98. "Run-to-Run Control	
EXAMINER	DATE CONSIDERED		

SHEET 21 OF 26

	300	EEI <u>21 OF 20</u>
INFORMATION DISCLOSURE	ATTY. DOCKET NO.	SERIAL NO.
CITATION IN AN	007733 USA/FPS/MMCS/APC	10/765,921
APPLICATION	1	
(PTO-1449)		
	APPLICANT	
	Alexander T. SCHWARM	
	FILING DATE	GROUP
	January 29, 2004	
OTHER ART (Including Author	, Title, Date, Pertinent Pages, Etc.)	<u> </u>
Ouma, Dennis, Duane Boning, James Chung, Gro	eg Shinn, Leif Olsen, and John Clark,	1998. "An Integrated
Characterization and Modeling Methodology for		
International Interconnect Technology Conferen	ce, pp. 67-69.	
Suzuki, Junichi and Yoshikazu Yamamoto. 1998	3. "Toward the Interoperable Softwar	e Design Models: Quartet
of UML, XML, DOM and CORBA." Proceeding	gs IEEE International Software Engin	eering Standards
Symposium. pp. 1-10.  Consilium. January 1999. "FAB300 <sup>TM</sup> : Consiliur	n's Next Constation MES Solution of	Coftware and Comiese
which Control and Automate Real-Time FAB Or		Software and Services
www.consilium.com/products/fab300_page.htm#		
McIntosh, John. March 1999. "Using CD-SEM		niconductors (Abstract)."
<i>JOM</i> , vol. 51, no. 3, pp. 38-39.		
Pan, J. Tony, Ping Li, Kapila Wijekoon, Stan Tsa	ii, and Fritz Redeker. May 1999. "Co	opper CMP Integration
and Time Dependent Pattern Effect." IEEE 1999	International Interconnect Technology	gy Conference, pp. 164-
Klein, Bruce. June 1999. "Application Develops	mont: VMI Makes Object Models M	and Hanful "
Informationweek. pp. 1A-6A.	ment. AML Makes Object Models Mid	ore Oseiui.
Baliga, John. July 1999. "Advanced Process Co.	ntrol: Soon to be a Must." Cahners S	emiconductor
International. www.semiconductor.net/semicond	uctor/issues/issues/1999/jul99/docs/fe	eature 1.asp
Consilium. July 1999. "Increasing Overall Equi	oment Effectiveness (OEE) in Fab Ma	anufacturing by
Implementing Consilium's Next-Generation Man	ufacturing Execution System - MES	II." Semiconductor
Fabtech Edition 10.		
Meckl, P. H. and K. Umemoto. August 1999. "A Machinery (Abstract)." Proceedings of the 1999	Achieving Fast Motions in Semicondu	ctor Manufacturing
1, pp. 725-729. Kohala Coast, HI.	TEEE International Conjerence on Co	ontroi Applications, voi.
Consilium Corporate Brochure. October 1999. M	yww.consilium.com	
Khan, K., C. El Chemali, J. Moyne, J. Chapple-So		Parikh October 1000
"Yield Improvement at the Contact Process Through		
Electronics Manufacturing Technology Symposiu		
Moyne, James. October 1999. "Advancements in	n CMP Process Automation and Cont	rol." Hawaii: (Invited
paper and presentation to) Third International Syr	nposium on Chemical Mechanical Po	lishing in IC Device
Manufacturing: 196 <sup>th</sup> Meeting of the Electrochem		
Williams, Randy, Dadi Gudmundsson, Kevin Mo Shanthikumar. October 1999. "Optimized Sample	nahan, Raman Nurani, Meryl Stoller	and J. George
Manufacturing Conference Proceedings, 1999 IE.	FF International Symposium on Sant	n, Semiconaucior
NJ. pp. 43 – 46.	<del>ьы тетинония оутрозит он зати</del>	s ciuru, cri. I iscaiaway,
	DATE CONSIDERED	

SHEET 22 OF 26

INFORMATION DISCLOSURE	ATTY. DOCKET NO.	SERIAL NO.
CITATION IN AN	007733 USA/FPS/MMCS/APC	10/765,921
APPLICATION		
(PTO-1449)		
	APPLICANT	
	Alexander T. SCHWARM	
	FILING DATE	GROUP
	January 29, 2004	
OTHER ART (Including Author	r, Title, Date, Pertinent Pages, Etc.)	<u> </u>
Consilium. November 1999. FAB300 <sup>TM</sup> Update.		
Ruegsegger, Steven, Aaron Wagner, James S. Fr		lovember 1999
"Feedforward Control for Reduced Run-to-Run	Variation in Microelectronics Manufac	cturing." IEEE
Transactions on Semiconductor Manufacturing,	vol. 12, no. 4.	
1999. "Contactless Bulk Resistivity/Sheet Resist		ems."
www.Lehighton.com/fabtech1/index.html.		
November 1999. "How to Use EWMA to Achie		nal Symposium on NDT
Contribution to the Infrastructure Safety System. <a href="http://www.ndt.net/abstract/ndtiss99/data/35.ht">http://www.ndt.net/abstract/ndtiss99/data/35.ht</a>		
Edgar, T. F., W. J. Campbell, and C. Bode. Dec		Microelectronics
Manufacturing." Proceedings of the 38th IEEE C	Conference on Decision and Control, P	hoenix, Arizona, vol. 4
pp. 4185-4191.		
NA LL D IX LYC XI . A CLOSO CO.		
Mecki, P. H. and K. Umemoto. April 2000. "Ad	chieving Fast Motions by Using Shape	d Reference Inputs
[Semiconductor Manufacturing Machine] (Abstr	chieving Fast Motions by Using Shape ract)." NEC Research and Developmen	d Reference Inputs nt, vol. 41, no. 2, pp. 23
[Semiconductor Manufacturing Machine] (Abstr 237.	act)." NEC Research and Developmen	<i>u</i> t, vol. 41, no. 2, pp. 23
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah	ract)." NEC Research and Developmen  Khan, Rock Nadeau, Paul Smith, John	nt, vol. 41, no. 2, pp. 23 Colt, Jonathan Chapple
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "M	ract)." NEC Research and Developmen  Khan, Rock Nadeau, Paul Smith, John  Multizone Uniformity Control of a Cher	ut, vol. 41, no. 2, pp. 23  Colt, Jonathan Chapple  mical Mechanical
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah	ract)." NEC Research and Developmen  Khan, Rock Nadeau, Paul Smith, John  Multizone Uniformity Control of a Cher	nt, vol. 41, no. 2, pp. 23  Colt, Jonathan Chapple nical Mechanical
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "M Polishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology, H. Ryssel, H. Gerath, C. Baier, an	ct, vol. 41, no. 2, pp. 23  Colt, Jonathan Chapple mical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembe
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technomer, H. Ryssel, H. Gerath, C. Baier, an Etch Sequence (Abstract)." Proceeding	Colt, Jonathan Chapple mical Mechanical ol. A, Vol. 18(4). pp.
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Me Polishing Process Utilizing a Pre- and Postmeast 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Co.	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technoloner, H. Ryssel, H. Gerath, C. Baier, an Etch Sequence (Abstract)." Proceeding on ference, vol. 4182, pp. 31-39.	Colt, Jonathan Chapple mical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeast 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/International Society for Optical Engineering Control Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Control Robin."	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technoloner, H. Ryssel, H. Gerath, C. Baier, an Etch Sequence (Abstract)." Proceeding on ference, vol. 4182, pp. 31-39.	Colt, Jonathan Chapple mical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "M Polishing Process Utilizing a Pre- and Postmeast 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/International Society for Optical Engineering Co. Cheung, Robin. October 18, 2000. "Copper International Colara, CA.	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. H. Gerath, C. Baier, an Etch Sequence (Abstract)." Proceeding onference, vol. 4182, pp. 31-39.	Colt, Jonathan Chapple mical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembergs of the SPIE – The er Group Meeting, Santa
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Concentrational Society for Optical Engineering Concentration Society for Optical Engineering	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. The Ryssel, H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding Onference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usett Campbell, Carlos Pfeiffer, Christophaber 2000. "Automatic Control in Michael Control in Michael Carlos Pfeiffer, Christophaber 2000. "Automatic Control in Michael Carlos Pfeiffer, Christophaber 2000."	Colt, Jonathan Chapple mical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santager Bode, Sung Bostoelectronics
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Company Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. The Ryssel, H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding on ference, vol. 4182, pp. 31-39. Exerconnect Technology." AVS/CMP Usett Campbell, Carlos Pfeiffer, Christophaber 2000. "Automatic Control in Micbilities (Abstract)." Automatica, v. 36,	Colt, Jonathan Chapple mical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santage Bode, Sung Botroelectronics n. 11.
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Company	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding on ference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usett Campbell, Carlos Pfeiffer, Christople on the control in Michael (Abstract)." Automatica, v. 36, pp. 2000. "Critical Dimension Control in Michael (Control	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santana Bode, Sung Botroelectronics n. 11.
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Company Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. October 18, 2000. "Copper International Society for Optical Engineering Company Robin. Oct	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding on ference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usett Campbell, Carlos Pfeiffer, Christople on the control in Michael (Abstract)." Automatica, v. 36, pp. 2000. "Critical Dimension Control in Michael (Control	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santana Bode, Sung Botroelectronics n. 11.
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeast 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copp	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. The Ryssel, H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding Onference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usert Campbell, Carlos Pfeiffer, Christophaber 2000. "Automatic Control in Michigal Carlos (Abstract)." Automatica, v. 36, pp. 2000. "Critical Dimension Control in Engineering Systems Design Conference."	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santher Bode, Sung Botroelectronics n. 11. n Semiconductor ace, pp. 995-1000. St.
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Ch	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. The Ryssel, H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding Onference, vol. 4182, pp. 31-39. Exerconnect Technology." AVS/CMP Use the Campbell, Carlos Pfeiffer, Christophaber 2000. "Automatic Control in Michilities (Abstract)." Automatica, v. 36, pr. 2000. "Critical Dimension Control in Engineering Systems Design Conference Metallization for 0.13 to 0.05 µm & Be	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santher Bode, Sung Botroelectronics n. 11. n Semiconductor ace, pp. 995-1000. St.
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Competence Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Conference Ch	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. The Ryssel, H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding Onference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usert Campbell, Carlos Pfeiffer, Christophaber 2000. "Automatic Control in Michigan Michigan Systems Design Conference Metallization for 0.13 to 0.05 µm & Befs	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santaner Bode, Sung Botroelectronics n. 11. n Semiconductor ace, pp. 995-1000. St. yond."
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Company	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. The Ryssel, H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding Onference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usert Campbell, Carlos Pfeiffer, Christopher 2000. "Automatic Control in Michigheites (Abstract)." Automatica, v. 36, pr. 2000. "Critical Dimension Control in Engineering Systems Design Conference Metallization for 0.13 to 0.05 µm & Beifs addimir Machavariani, and David Schei	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santana and the Bode, Sung Botroelectronics n. 11. n Semiconductor ace, pp. 995-1000. St. yond."
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Company	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding on ference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usett Campbell, Carlos Pfeiffer, Christople on the Control in Microscopic (Abstract)." Automatica, v. 36, pp. 2000. "Critical Dimension Control in Engineering Systems Design Conference Metallization for 0.13 to 0.05 µm & Best Sequence Semiconductor Manufacture (Advanced Semiconductor Manufacture).	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santana and the Bode, Sung Botroelectronics n. 11. n Semiconductor ace, pp. 995-1000. St. yond."
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Medishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Company	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding on ference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usett Campbell, Carlos Pfeiffer, Christople on the Control in Microscopic (Abstract)." Automatica, v. 36, pp. 2000. "Critical Dimension Control in Engineering Systems Design Conference Metallization for 0.13 to 0.05 µm & Best Sequence Semiconductor Manufacture (Advanced Semiconductor Manufacture).	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santana Bode, Sung Botroelectronics n. 11. n Semiconductor ace, pp. 995-1000. St. yond."
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Melishing Process Utilizing a Pre- and Postmeast 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Color, Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Chang, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Specification for CIMSEMI. 2000. "Annufacturing Competition of Compet	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. The Ryssel, H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding Onference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usert Campbell, Carlos Pfeiffer, Christophaber 2000. "Automatic Control in Micholities (Abstract)." Automatica, v. 36, pr. 2000. "Critical Dimension Control in Engineering Systems Design Conference Metallization for 0.13 to 0.05 µm & Best School admir Machavariani, and David Scheil Advanced Semiconductor Manufactural Framework Scheduling Component."	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santana Bode, Sung Botroelectronics n. 11. n Semiconductor ace, pp. 995-1000. St. yond."
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "M Polishing Process Utilizing a Pre- and Postmeasu 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Co. Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Co. Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Co. Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Co. Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Co. Cheung, Robin. October 18, 2000. "Abann. Novem Manufacturing: Practices, Challenges, and Possil Khan, S., M. Musavi, and H. Ressom. November Manufacturing (Abstract)." ANNIE 2000. Smart Louis, Missouri.  ACM Research Inc. 2000. "Advanced Copper Marting Avi, Avner Sharon, Amit Weingarten, Vla CMP Planarity Control Using ITM." IEEE/SEM 437-443.  SEMI. 2000. "Provisional Specification for CIM SEMI E105-1000.  2000. "Microsense II Capacitance Gaging System	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding on ference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usett Campbell, Carlos Pfeiffer, Christople on the control in Microbilities (Abstract)." Automatica, v. 36, pr. 2000. "Critical Dimension Control in Engineering Systems Design Conference Metallization for 0.13 to 0.05 µm & Best Advanced Semiconductor Manufactural Framework Scheduling Component." In." www.adetech.com.	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santana and the Bode, Sung Botroelectronics n. 11. In Semiconductor ace, pp. 995-1000. St. yond."  The property of the SPIE – The er Group Meeting, Santana and Semiconductor ace, pp. 995-1000. St. yond."  The property of the SPIE – The er Group Meeting, Santana and Semiconductor ace, pp. 995-1000. St. yond."
[Semiconductor Manufacturing Machine] (Abstr 237.  Chemali, Chadi El, James Moyne, Kareemullah Sokol, and Tarun Parikh. July/August 2000. "Melishing Process Utilizing a Pre- and Postmeast 1287-1296. American Vacuum Society.  Oechsner, R., T. Tschaftary, S. Sommer, L. Pfitz 2000. "Feed-forward Control for a Lithography/ International Society for Optical Engineering Color, Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Chang, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Cheung, Robin. October 18, 2000. "Copper International Society for Optical Engineering Color, Robin. October 18, 2000. "Copper International Specification for CIMSEMI. 2000. "Annufacturing Competition of Compet	Khan, Rock Nadeau, Paul Smith, John Multizone Uniformity Control of a Cherurement Strategy." J. Vac. Sci. Technology. The Ryssel, H. Gerath, C. Baier, and Etch Sequence (Abstract)." Proceeding on ference, vol. 4182, pp. 31-39. Perconnect Technology." AVS/CMP Usert Campbell, Carlos Pfeiffer, Christople on the Politics (Abstract)." Automatica, v. 36, pp. 2000. "Critical Dimension Control in Microscopial Conference on Systems Design Conference on Metallization for 0.13 to 0.05 µm & Best Seadimir Machavariani, and David Scheil Hadvanced Semiconductor Manufactural of Framework Scheduling Component." "Age-Based Double EWMA Control in "Age-Based Double EWMA" Control in "Age-Bas	Colt, Jonathan Chapple mical Mechanical Mechanical ol. A, Vol. 18(4). pp. d M. Hafner. Septembers of the SPIE – The er Group Meeting, Santana and the Bode, Sung Botroelectronics n. 11. In Semiconductor ace, pp. 995-1000. St. yond."  The semiconductor ace, pp. 995-1000. St. yond."  The semiconductor ace, pp. 995-1000. St. yond."  The semiconductor ace, pp. 995-1000. St. yond."

SHEET 23 OF 26

II.	NFORMATION DISCLOSURE	ATTY. DOCKET NO.	SERIAL NO.
	CITATION IN AN	007733 USA/FPS/MMCS/APC	10/765,921
	APPLICATION		
	(PTO-1449)		
		APPLICANT	
		Alexander T. SCHWARM	
		FILING DATE	GROUP
		January 29, 2004	OKOU!
	OTHER ART (Including Author, T		
	March 5, 2001. "KLA-Tencor Introduces First Prod	duction-worthy Copper CMP In-situ	Film Thickness and End-
	point Control System." http://www.kla-tencor.com/		
	Lee, Brian, Duane S. Boning, Winthrop Baylies, No.		
	Koliopoulus, Dale Hetherington, HongJiang Sun, an Effects on CMP: Experimental Validation of Mode	.nd Michael Lacy. April 2001. wa	fer Nanotopography
	Research Society Spring Meeting.	ing Methods. San Francisco, Can	IOIIIa. iviaiciiais
	Tobin, K. W., T. P. Karnowski, L. F. Arrowood, an	nd F Lakhani April 2001. "Field T	'est Results of an
	Automated Image Retrieval System (Abstract)." Ac		
	IEEE/SEMI, Munich, Germany.		
	Tan, K. K., H. F. Dou, and K. Z. Tang. May-June 2		
	Semiconductor and Electronic Components Manufa		: Components and
	Technology Conference 2001. Proceedings, pp. 137		
	Jensen, Alan, Peter Renteln, Stephen Jew, Chris Ra		
	Modeling for Control of CMP Removal Uniformity	"." Solid State Technology, Vol. 44.	, No. 6, pp. 101-102, 104,
	106. Cowan Publ. Corp.: Washington, D.C.		
	July 5, 2001. "Motorola and Advanced Micro Devi		anced Process Control
	Product for Five Wafer Fabs." Semiconductor FAE www.semiconductorfabtech.com/industry.news/990		
			Eddy Current &
	Heuberger, U. September 2001. "Coating Thickness Measurement with Dual-Function Eddy-Current & Magnetic Inductance Instrument (Abstract)." <i>Galvanotechnik</i> , vol. 92, no. 9, pp. 2354-2366+IV.		
	Pilu, Maurizio. September 2001. "Undoing Page Curl Distortion Using Applicable Surfaces." IEEE International Conference on Image Processing. Thessalonica, Greece.		Traces. IEEE
	October 15, 2001. Search Report prepared by the Austrian Patent Office for Singapore Patent Application No.		
	200004286-1.		
	Wang, LiRen and Hefin Rowlands. 2001. "A Nove		
	International Conference on Emerging Technologies and Factory Automation, pp. 417-423.		
	NovaScan 2020. February 2002. "Superior Integra	ited Process Control for Emerging C	MP High-End
<del></del>	Applications."		
	March 15, 2002. Office Action for U.S. Serial No. 09/469,227, filed December 22, 1999.		
	March 29, 2002. Office Action for U.S. Serial No. 09/363,966, filed July 29, 1999.		
	Moyne, J., V. Solakhian, A. Yershov, M. Anderson,	, and D. Mockler-Hebert. April-Ma	y 2002. "Development
	and Deployment of a Multi-Component Advanced Process Control System for an Epitaxy Tool (Abstract)."		
	2002 IEEE Advanced Semiconductor Manufacturing	g Conference and Workshop, pp. 12	5-130.
	Sarfaty, Moshe, Arulkumar Shanmugasundram, Ale		
	Martin J. Seamons, Howard Li, Raymond Hung, and		
	Control Solutions for Semiconductor Manufacturing		
	Advanced Semiconductor Manufacturing Conference	e. Advancing the Science and Techr	iology of Semiconductor
EXAMINER	Manufacturing. ASMC 2002, pp. 101-106.	ATT CONCIDENCE	
EXAMINER	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ATE CONSIDERED	- A

SHEET 24 OF 26

	OTTE	E1 <u>24</u> UF <u>20</u>
INFORMATION DISCLOSURE CITATION IN AN APPLICATION (DTO 1440)	ATTY. DOCKET NO. 007733 USA/FPS/MMCS/APC	SERIAL NO. 10/765,921
(PTO-1449)		
	APPLICANT	
	Alexander T. SCHWARM	
	FILING DATE January 29, 2004	GROUP
OTHER ART (Including Author	, Title, Date, Pertinent Pages, Etc.)	
Campbell, W. J., S. K. Firth, A. J. Toprac, and T. Algorithms (Abstract)." Proceedings of 2002 Am		
Good, Richard and S. Joe Qin. May 2002. "Stab Metrology Delay." <i>IEEE/CPMT International Elements</i> Smith, Stewart, Anthony J. Walton, Alan W. S. R 2002. "Evaluation of Sheet Resistance and Electropamascene Interconnect." <i>IEEE Transactions on</i>	lectronics Manufacturing Technology Ross, Georg K. H. Bodammer, and J. Trical Linewidth Measurement Technic	Symposium, pp. 355-363 F. M. Stevenson. May ques for Copper
Johnson, Bob. June 10, 2002. "Advanced Proces		
June 20, 2002. Office Action for U.S. Serial No.	•	
Itabashi, Takeyuki, Hiroshi Nakano, and Haruo A Copper Diffusion Barrier Metal." IEEE Internati July 9, 2002. International Search Report for PC	ional Interconnect Technology Confe	
July 23, 2002. Communication Pursuant to Artic 00 115 577.9.		plication No.
July 29, 2002. International Search Report for PC	CT/US01/27407.	,
September 26, 2002. Office Action for U.S. Seria	al No. 09/637,620, filed August 11, 20	000.
October 4, 2002. International Search Report for	PCT/US01/22833.	
October 15, 2002. International Search Report fo	or PCT/US02/19062.	
October 23, 2002. International Search Report fo	or PCT/US01/27406.	
October 23, 2002. Office Action for U.S. Serial I	No. 09/469,227, filed December 22, 1	999.
November 7, 2002. International Search Report f	for PCT/US02/19061.	
November 11, 2002. International Search Report	for PCT/US02/19117.	
November 12, 2002. International Search Report	for PCT/US02/19063.	
December 17, 2002. Office Action for U.S. Seria	al No. 09/363,966, filed July 29, 1999.	
ACM Research, Inc. 2002. "ACM Ultra ECP® Swww.acmrc.com/ecp.html	System: Electro-Copper Plating (ECP	) Deposition."
Applied Materials, Inc. 2002. "Applied Material www.appliedmaterials.com/products/copper_elec		Electrochemical Plating."
KLA-Tencor Corporation. 2002. "KLA Tencor: Worthy Copper CMP In-Situ Film Thickness and Shipped to Major CMP Tool Manufacturer." www.kla-tencor.com/news_events/press_releases/	End-point Control System: Multi-Mi	llion Dollar Order
Sonderman, Thomas. 2002. "APC as a Competit AEC/APC.	ive Manufacturing Technology: AMD	
EXAMINER	DATE CONSIDERED	

SHEET 25 OF 26

INTEGRAL PROPERTY OF THE		EET 25 OF 26
INFORMATION DISCLOSURE CITATION IN AN APPLICATION (PTO-1449)	ATTY. DOCKET NO. 007733 USA/FPS/MMCS/APC	SERIAL NO. 10/765,921
(1 1 3 1 1 1 )	APPLICANT	<u> </u>
	Alexander T. SCHWARM	
	FILING DATE	GROUP
	January 29, 2004	
OTHER ART (Including Author	, Title, Date, Pertinent Pages, Etc.)	
Takahashi, Shingo, Kaori Tai, Hiizu Ohtorii, Nac Hiroshi Yamada, Masao Ishihara, and Takeshi No Using Electro-Chemical Polishing." 2002 Sympo 33.	ogami. 2002. "Fragile Porous Low-k	/Copper Integration by
2002. "Microsense II – 5810: Non-Contact Capa	citance Gaging Module." www.adetec	ch.com.
February 10, 2003. Office Action for U.S. Serial	No. 09/619,044, filed July 19, 2000.	· · · · · · · · · · · · · · · · · · ·
March 25, 2003. International Search Report for	PCT/US02/24859.	
April 9, 2003. Office Action for U.S. Serial No.	09/928,474, filed August 14, 2001.	
May 8, 2003. Office Action for U.S. Serial No. 0	09/637,620, filed August 11, 2000.	
May 23, 2003. Written Opinion for PCT/US01/2	4910.	
June 18, 2003. Office Action for U.S. Serial No.	09/655,542, filed September 6, 2000.	
July 23, 2003. Invitation to Pay Additional Fees International Search for PCT/US02/19116.		esults of the Partial
August 1, 2003. Written Opinion for PCT/US01/		
August 8, 2003. PCT International Search Report		
August 20, 2003. Written Opinion for PCT/US0		
August 25, 2003. Office Action for U.S. Serial N		
September 15, 2003. Office Action for U.S. Seria		001.
14 October 2003. PCT International Search Repo		
20 October 2003. PCT International Search Repo		-
23 October 2003. PCT International Preliminary	Examination Report from PCT/US01	/24910.
November 5, 2003. Office Action for U.S. Serial	No. 10/172,977, filed June 18, 2002.	
December 1, 2003. Office Action for U.S. Serial	No. 10/173,108, filed June 18, 2002.	
"NanoMapper wafer nanotopography measureme http://www.phase-shift.com/nanomap.shtml.		
"Wafer flatness measurement of advanced wafers shift.com/wafer-flatness.shtml.		
"ADE Technologies, Inc. – 6360." Printed Decer		
"3D optical profilometer MicroXAM by ADE Phashift.com/microxam.shtml.		
"NanoMapper FA factory automation wafer nanol http://www.phase-shift.com/nanomapperfa.shtml.	<u> </u>	
	LNo. 09/943.383, filed August 31, 20	01.
December 11, 2003. Office Action for U.S. Seria		

SHEET 26 OF 26

INFORMATION	DISCLOSURE	ATTY. DOCKET NO.	SERIAL NO.
CITATIO	N IN AN	007733 USA/FPS/MMCS/APC	10/765,921
APPLIC	· <del></del> ·		
(PTO-			
		APPLICANT	
		Alexander T. SCHWARM	
		FILING DATE January 29, 2004	GROUP
ОТН	ER ART (Including Author	Title, Date, Pertinent Pages, Etc.)	
December 16, 2003	. International Search Report	for PCT/US03/23964.	
	s A. 2003. "Using Electrochouctor/index.asp?layout=article	emistry to Improve Copper Interconne e&articleid=CA47465>	ects." <http: td="" www.e-<=""></http:>
January 20, 2004.	Office Action for U.S. Serial I	No. 09/927,444, filed August 13, 2001	•
January 23, 2004. 1	International Search Report fo	or PCT/US02/24860.	
February 2, 2004. (	Office Action for U.S. Serial I	No. 09/363,966, filed July 29, 1999.	
Wafer Endpoint De Applied Materials,	tection Improves Process Con Inc., Santa Clara, CA.	Fritz Redeker, Manush Birang, and Gatrol in Copper CMP." Semiconductor	r Fabtech – 12 <sup>th</sup> Edition.
Semiconductor Fab	tech, 8th Edition, pp. 267-274.		•••
	on, M. Finarov, and A. Shulmang." Ltd. Rehoveth, Israel: N	an. "Dielectric CMP Advanced Procestova Measuring Instruments.	s Control Based on
			. ,
EXAMINER		DATE CONSIDERED	

SHEET 14 OF 26

#### ATTY, DOCKET NO. SERIAL NO. INFORMATION DISCLOSURE 007733 USA/FPS/MMCS/APC 10/765,921 CITATION IN AN **APPLICATION** (PTO-1449) APPLICANT Alexander T. SCHWARM FILING DATE **GROUP** January 29, 2004 FOREIGN PATENT DOCUMENTS **EXAMINER'S** PATENT NO. DATE COUNTRY SUBCLASS CLASS Translation **INITIALS** Yes No 61-66104 -04/04/86 Japan X 61-171147 08/01/86 Japan X 01-283934 11/15/89 X Japan 0 397 924 A1 11/22/90 Europe X 2,050,247 08/29/91 Canada X 2,165,847 08/29/91 Canada X 2,194,855 / 08/29/91 Canada X 3-202710 09/04/91 Japan X 05-151231 06/18/93 Japan X 05-216896 08/27/93 Japan X 05-266029 10/15/93 X Japan 06-110894 04/22/94 X Japan 06-176994 06/24/94 X Japan 06-184434 07/05/94 X Japan 06-252236 .-09/09/94 Japan X 06-260380 -09/16/94 X Japan EP 0 621 522 A2 10/26/94 Europe X WO 95/34866 -12/21/95 wo X 8-23166 01/23/96 X Japan 08-50161 / 02/20/96 Japan X 08-149583 06/07/96 Japan X 08-304023 11/22/96 Japan X EP 0 747 795 A2 -12/11/96 Europe $\overline{\mathbf{x}}$ 09-34535 02/07/97 Japan $\overline{\mathbf{X}}$ 9-246547 09/19/97 X Japan WO 98/05066 02/05/98 wo X 10-34522 02/10/98 X Japan 10-173029 \* 06/26/98 Japan X **EXAMINER** DATE CONSIDERED

SHEET 15 OF 26

## SERIAL NO. ATTY, DOCKET NO. INFORMATION DISCLOSURE 007733 USA/FPS/MMCS/APC 10/765,921 CITATION IN AN **APPLICATION** (PTO-1449) APPLICANT Alexander T. SCHWARM FILING DATE GROUP January 29, 2004 FOREIGN PATENT DOCUMENTS **EXAMINER'S** PATENT NO. DATE COUNTRY CLASS **SUBCLASS INITIALS** Translation EP 0 869 652 A2 10/07/98 Europe X WO 98/45090 wo 10/15/98 X EP 0 877 308 A2 11/11/98 Europe X EP 0 881 040 A2 12/02/98 X Europe EP 0 895 145 A1 02/03/99 Europe X WO 99/09371 wo 02/25/99 X 11-67853 03/09/99 Japan X EP 0 910 123 A1 04/21/99 Europe X نے 11-126816 05/11/99 Japan X 11-135601 05/21/99 Japan X WO 99/25520 wo 05/27/99 X EP 0 932 194 A1 07/28/99 Europe X WO 99/59200 11/18/99 WO X WO 00/00874 01/06/00 wo X WO 00/05759 02/03/00 WO X wo WO 00/35063 06/15/00 X 2000-183001 2 06/30/00 Japan X WO 00/54325 09/14/00 wo X GB 2 347 885 A 09/20/00 United Kingdom $\overline{\mathbf{x}}$ WO 00/79355 A1 12/28/00 WO X EP 1 066 925 A2 01/10/01 Europe X EP 1 067 757 A1 01/10/01 Europe X EP 1 071 128 A2 01/24/01 Europe X WO 01/11679 A1 02/15/01 WO $\overline{\mathbf{x}}$ WO 01/15865 A1 wo 03/08/01 X WO 01/18623 A1 WO 03/15/01 X **EXAMINER** DATE CONSIDERED

SHEET 16 OF 26

# ATTY, DOCKET NO. SERIAL NO. INFORMATION DISCLOSURE 007733 USA/FPS/MMCS/APC 10/765,921 CITATION IN AN **APPLICATION** (PTO-1449) APPLICANT Alexander T. SCHWARM FILING DATE GROUP January 29, 2004 FOREIGN PATENT DOCUMENTS **EXAMINER'S** PATENT NO. DATE COUNTRY CLASS SUBCLASS INITIALS Translation Yes Nο 2001-76982 03/23/01 Japan X EP 1 092 505 A2 04/18/01 Europe $\overline{\mathbf{X}}$ WO 01/33277 A1 05/10/01 wo X WO 01/33501 A1 05/10/01 WO X 434103 05/16/01 Taiwan X 436383B 05/28/01 Taiwan $\overline{\mathbf{x}}$ WO 01/52055 A3 07/19/01 WO X WO 01/52319 A1 wo 07/19/01 X WO 01/57823 A2 08/09/01 wo X 455938B 09/21/01 Taiwan X 455976 09/21/01 Taiwan X 2001-284299 10/12/01 Japan X WO 01/80306 A2 10/25/01 WO X 2001-305108 10/31/01 Japan X EP 1 072 967 A3 11/21/01 X Europe 2002-9030 01/11/02 $\overline{\mathbf{X}}$ Japan EP 1 182 526 A2 02/27/02 Europe X WO 02/17150 A1 02/28/02 wo X WO 02/31613 A2 04/18/02 wo X WO 02/31613 A3 04/18/02 wo X WO 02/33737 A2 04/25/02 wo X WO 02/074491 A1 wo 09/26/02 X 2002-343754 11/29/02 X Japan **EXAMINER** DATE CONSIDERED